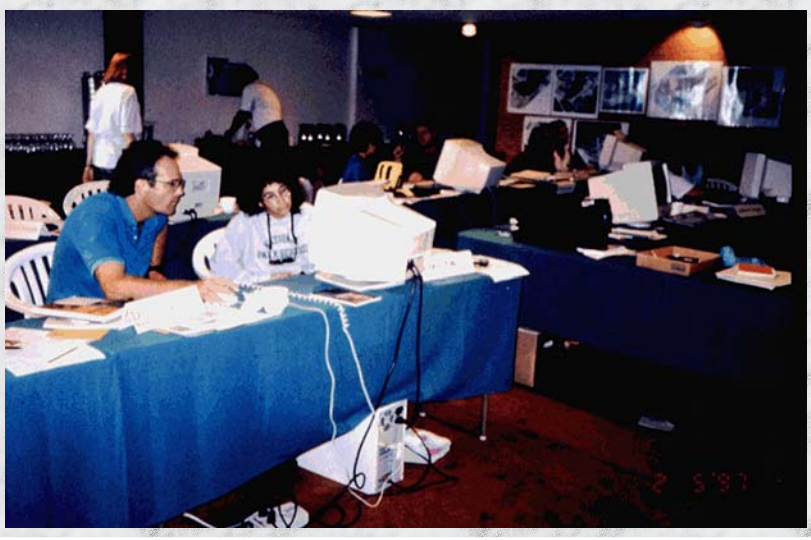
Project Development
Designing a Data Dictionary

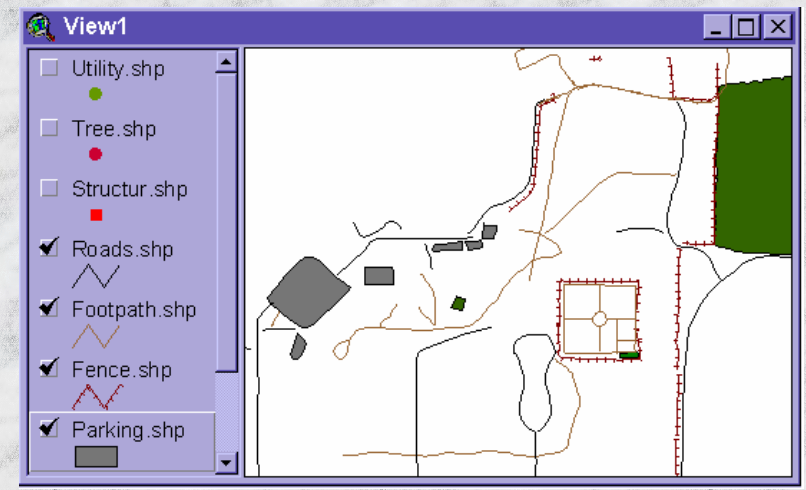
Steps in Project Development

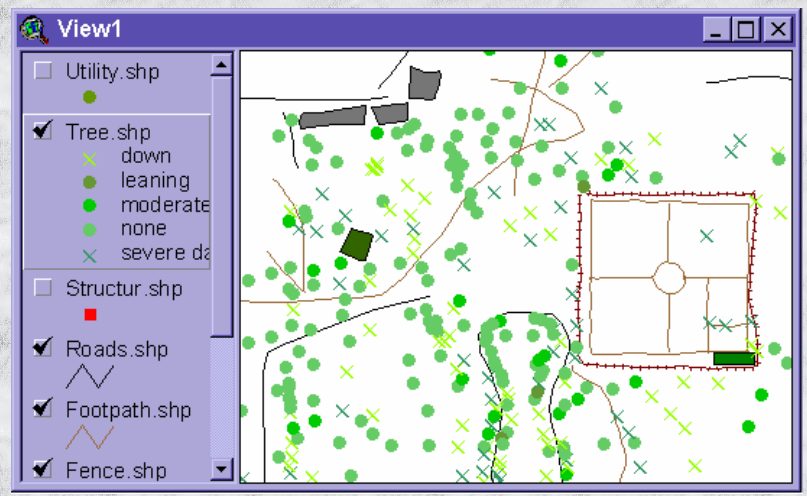
- Decide on the purpose of the survey
- Write a project description
- Decide on level of accuracy
- Determine what information is already available



Steps in Project Design
Decide the Purpose of the Survey

Baseline Inventory surveys capture overview data and provide basic information about many different features

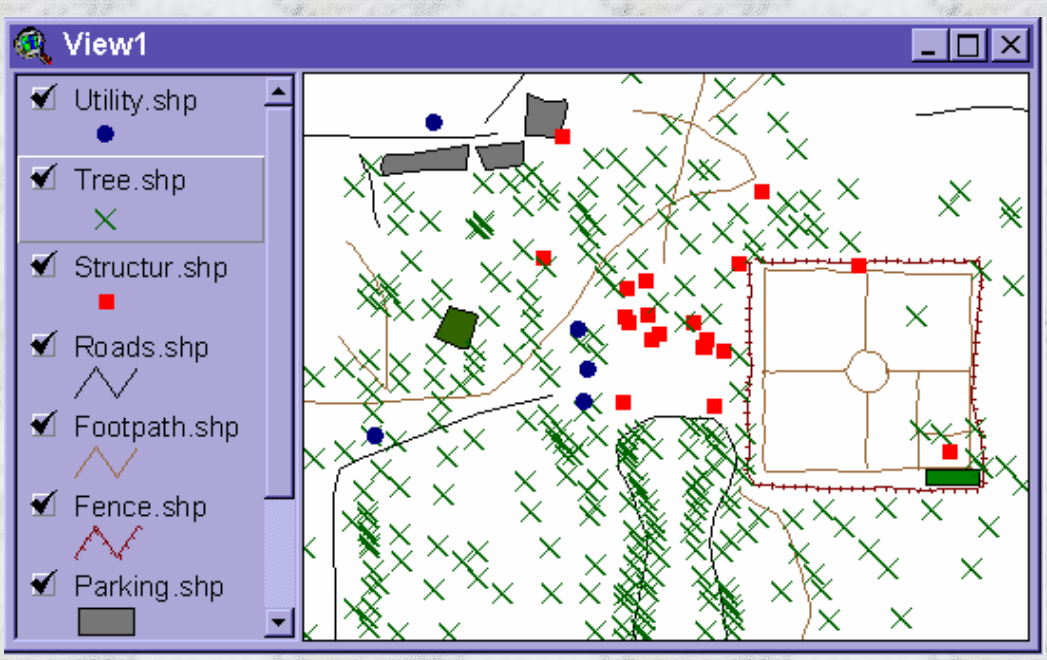




Application surveys capture specialized data and complex information describing a specific feature

Steps in Project Design
Decide the Purpose of the Survey

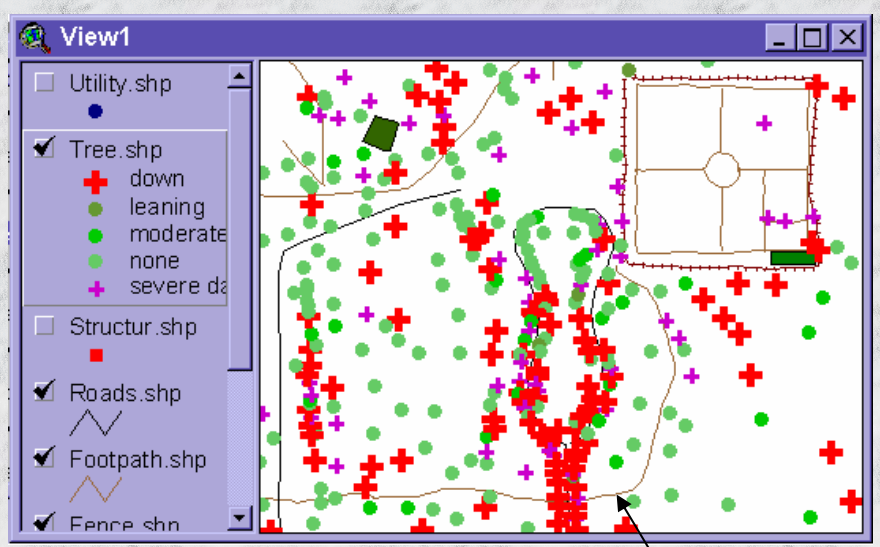
- Most GPS projects are a combination of baseline and specific application survey
- One data dictionary can describe many features, yet capture detailed attribute information



Steps in Project Design

Project Description and Research Questions

- A project description explains the purpose of the project and outlines research questions
- Focuses survey efforts on collection of required features and attributes



Target area for maintenance

Example Research Questions

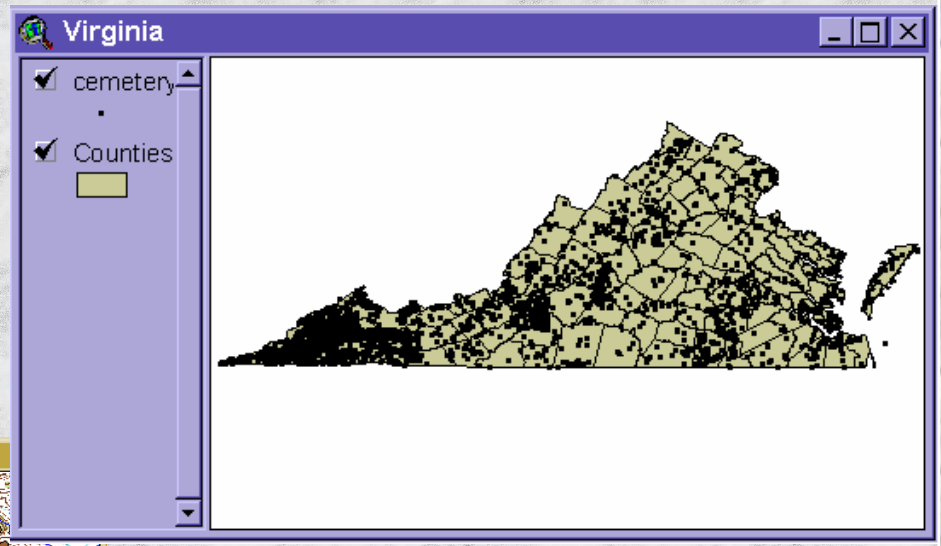
What is the extent of storm damage to the cultural landscape at the Hermitage historic site?

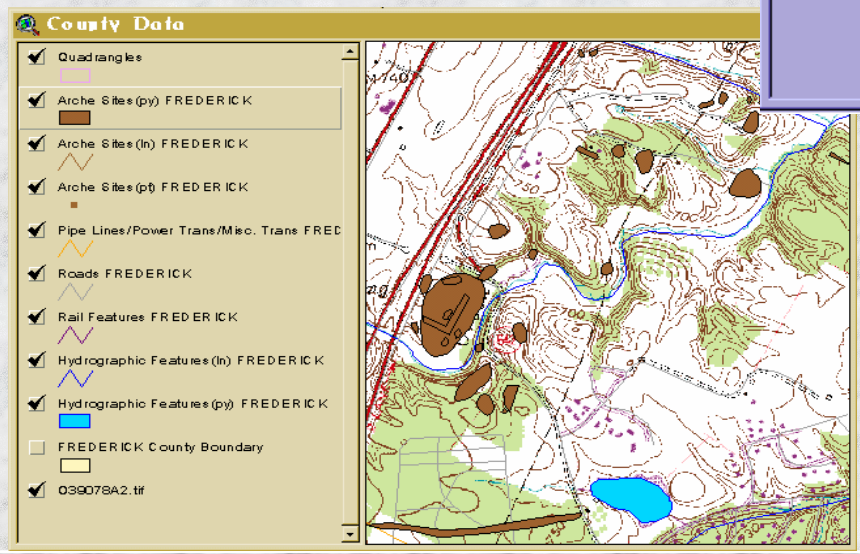
Which area received the most damage, and which species of tree?

What will be the cost of clean up to the historic landscape?

Steps in Project Design
Decide the Level of Accuracy

- Purpose of the survey determines the level of accuracy required
- Smaller scale data may resolve your research questions





Standard Levels of Mapping Accuracy

1:250,000 scale USGS 1x2 degree series +/- 250 meters

1:100,000 scale USGS 30x60 minute series +/- 90 meters

1:24,000 scale USGS 7.5 minutes quadrangle maps +/- 12 meters

1:2,000 scale site plans and tax parcel maps +/- 5 meters (varies)

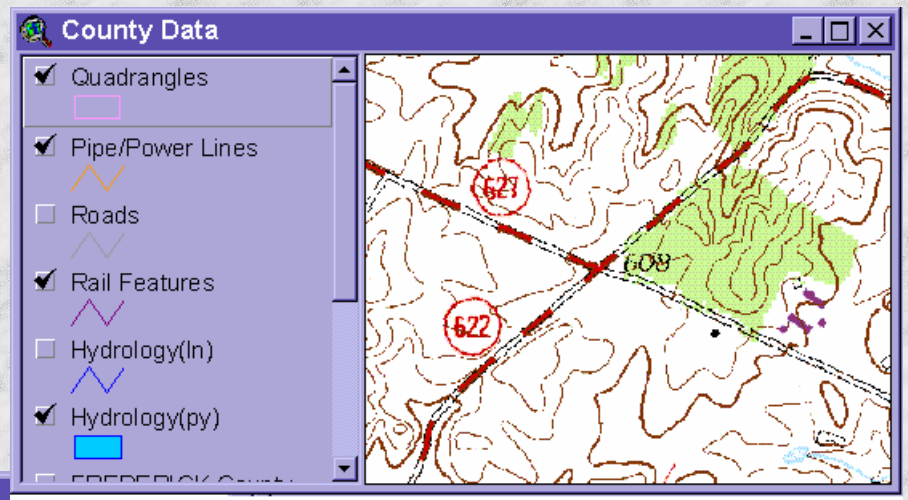
GPS (mapping grade) +/- 1 meter

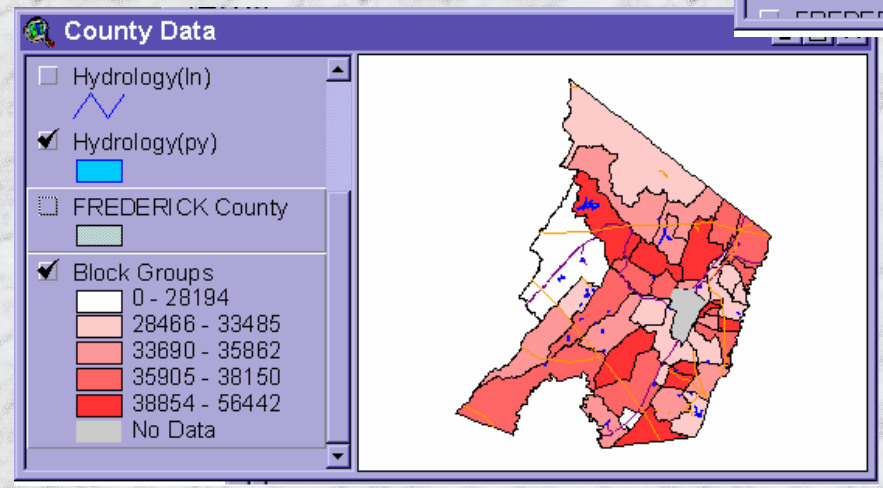
GPS (survey grade) +/- 10 centimeters

Laser transit boundary line survey +/- 5 centimeters

Steps in Project Design
Determine Available Information

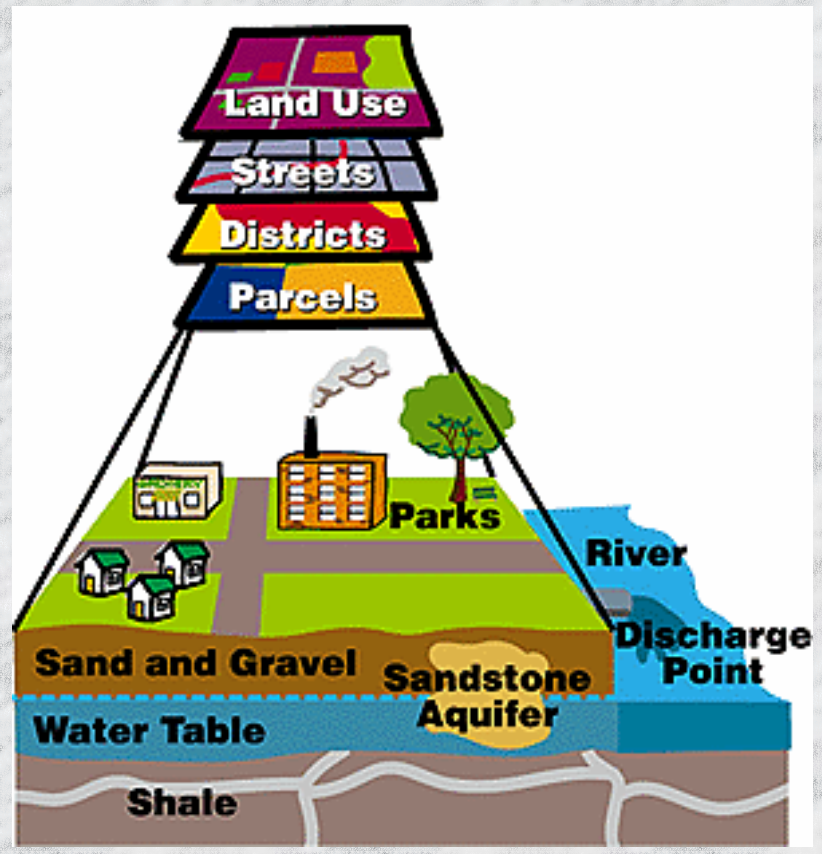
- Geographic information is available from many sources
- Digital base data may already exist for your study area
- Prime sources include the Census Bureau and USGS



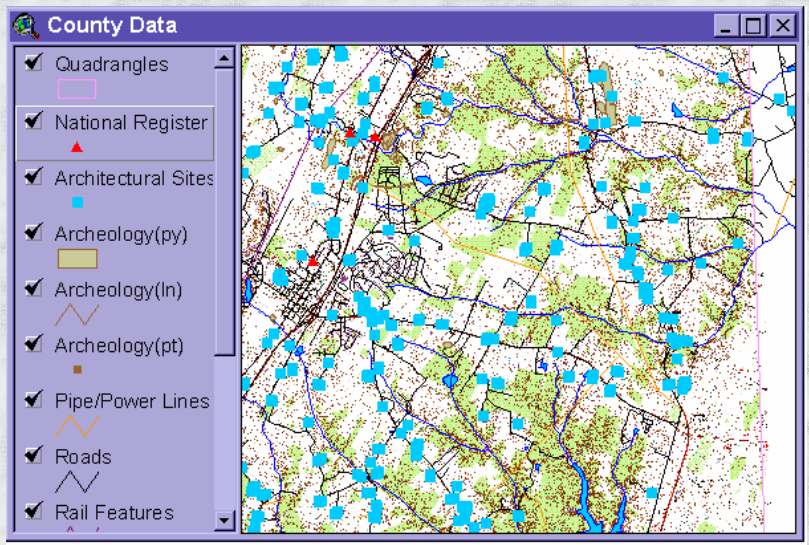


Basic Data Dictionary Concepts

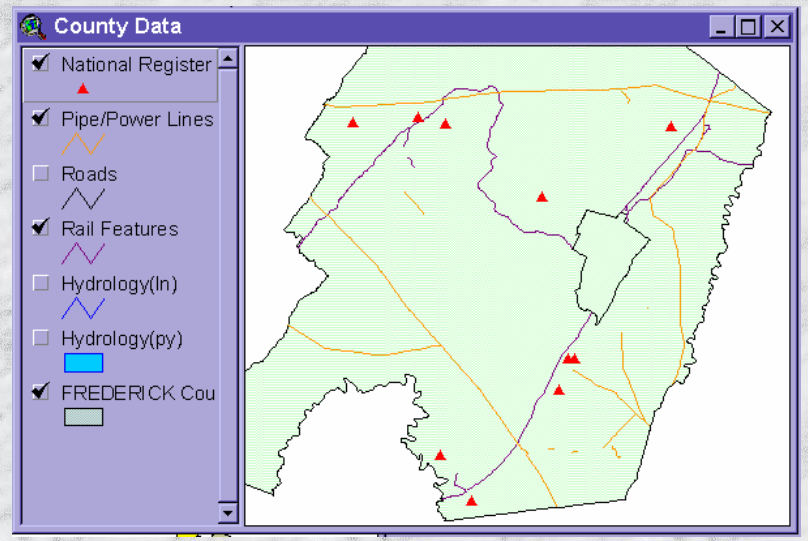
- A data dictionary is a list of features to map
- Serves as a guide to surveyors in the field
- Data dictionaries consist of features and their attributes



Basic Data Dictionary Concepts



Capturing too much data results in complex maps, difficult to read



Capturing too little data results in incomplete maps and faulty analysis

Developing A Data Dictionary

- Identify features to be observed and mapped
- Determine attributes for each feature
- Test the data dictionary

Developing A Data Dictionary

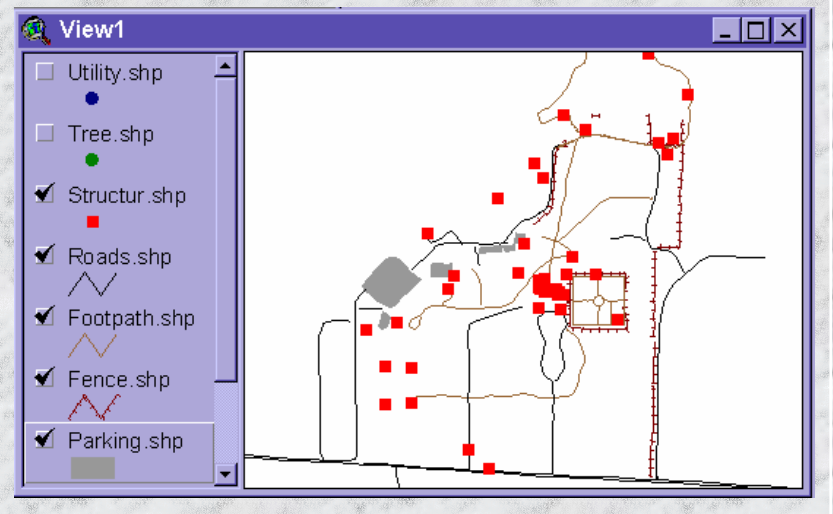
Identify Features to Map

Developing A Data Dictionary

Identify Features to Map

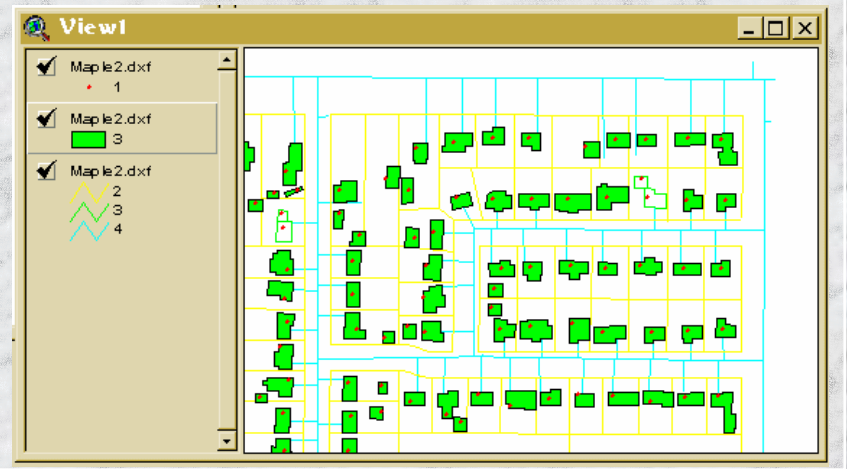
- All features must be classified as either a point, a line, or a polygon

Buildings as points



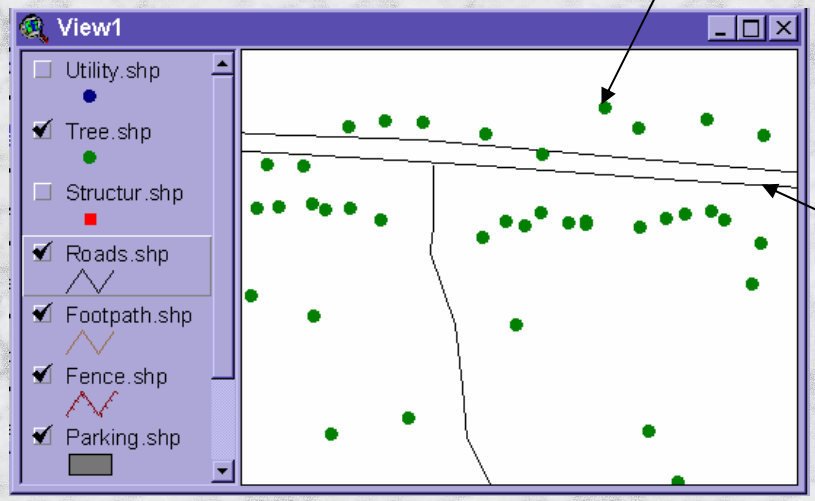
- Feature classification depends on the use of the data and the scale at which it will be displayed

Buildings as areas



Developing A Data Dictionary
Identify Features to Map

- Target features are specific to the application



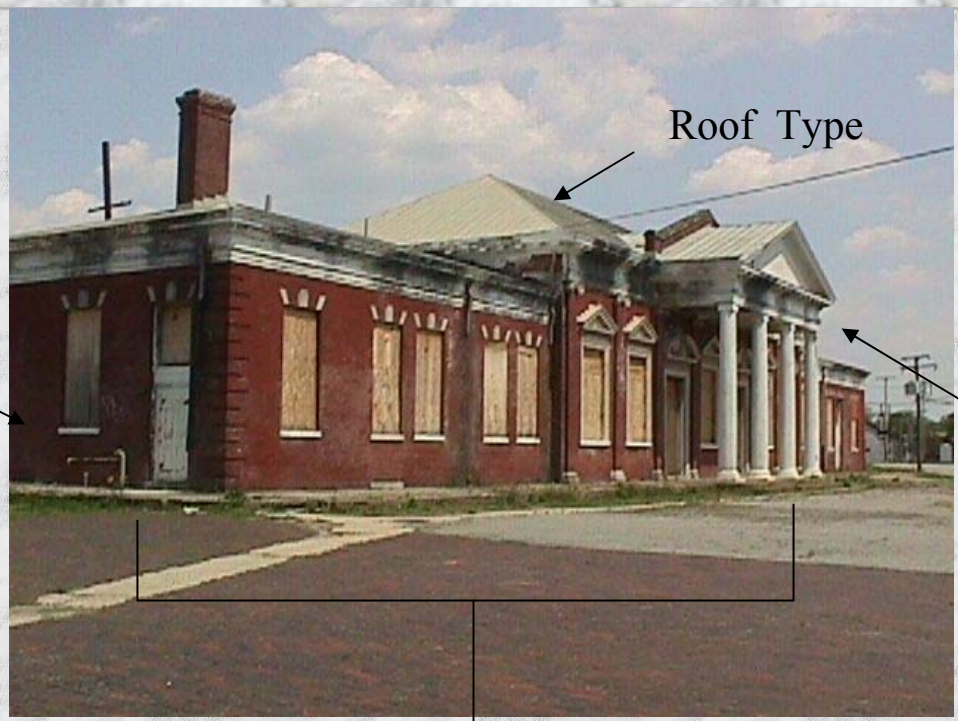
Trees are the target

Roads are the reference

- Reference features provide context and quality control

Developing A Data Dictionary

Determine Attributes to Record



Architectural Style

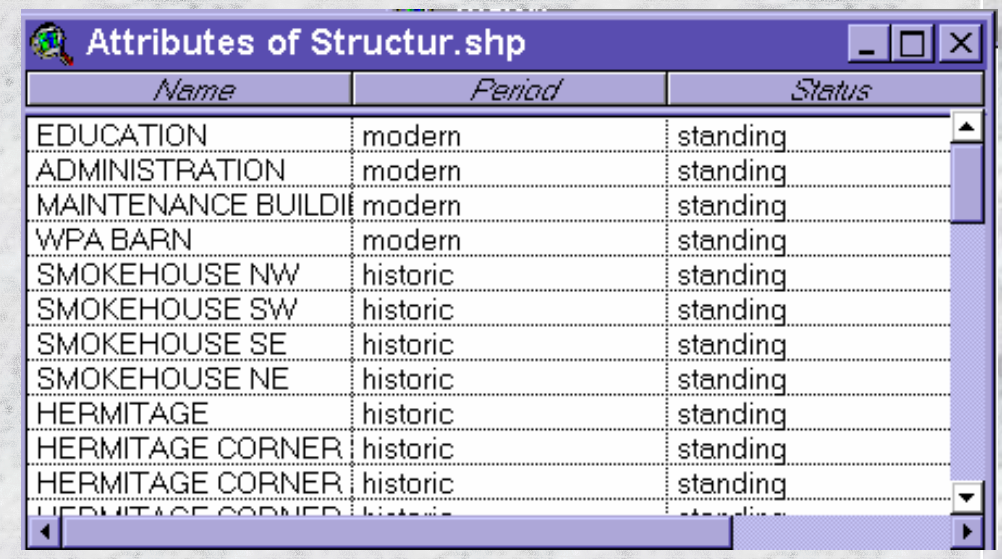
Construction Dates

ID Number

Name of Structure

Developing A Data Dictionary
Determine Attributes to Record

- Collect only attributes recognizable in the field
- Understand your surveyors familiarity with the resources
- Incorporate common data fields, for example ID number
- Make sure data will answer stated research questions



Name	Period	Status
EDUCATION	modern	standing
ADMINISTRATION	modern	standing
MAINTENANCE BUILDI	modern	standing
WPA BARN	modern	standing
SMOKEHOUSE NW	historic	standing
SMOKEHOUSE SW	historic	standing
SMOKEHOUSE SE	historic	standing
SMOKEHOUSE NE	historic	standing
HERMITAGE	historic	standing
HERMITAGE CORNER	historic	standing
HERMITAGE CORNER	historic	standing

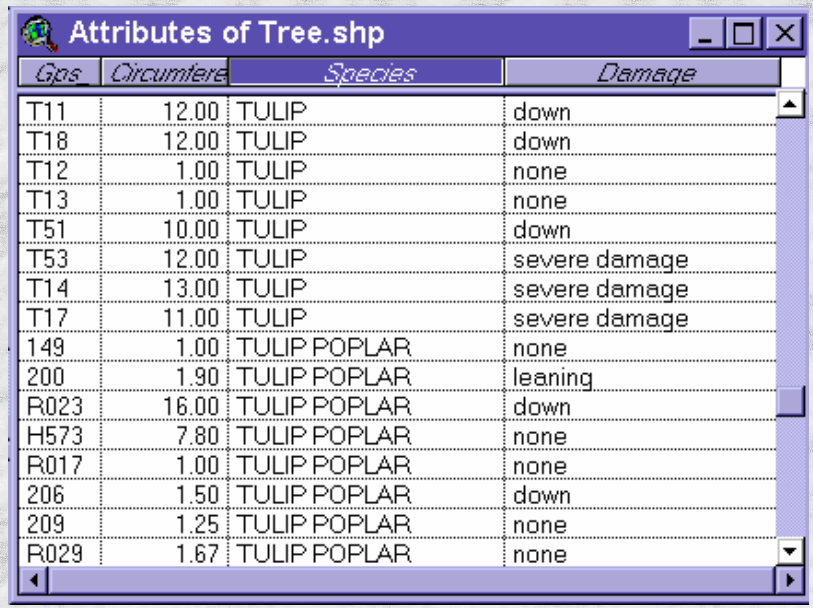
Developing A Data Dictionary
Determine Attributes to Record

Attribute Data Formats

- Menu
- Character
- Numeric
- Date (auto generated)
- Time (auto generated)

Developing A Data Dictionary
Determine Attributes to Record

- Menu Attributes
  - Standardize options
  - Reduce errors
  - Easy to query
  - Not flexible
- Character Attributes
  - Very Flexible
  - Responsive to unanticipated conditions
  - Difficult to query
  - More typos



Gps_	Circumfere	Species	Damage
T11	12.00	TULIP	down
T18	12.00	TULIP	down
T12	1.00	TULIP	none
T13	1.00	TULIP	none
T51	10.00	TULIP	down
T53	12.00	TULIP	severe damage
T14	13.00	TULIP	severe damage
T17	11.00	TULIP	severe damage
149	1.00	TULIP POPLAR	none
200	1.90	TULIP POPLAR	leaning
R023	16.00	TULIP POPLAR	down
H573	7.80	TULIP POPLAR	none
R017	1.00	TULIP POPLAR	none
206	1.50	TULIP POPLAR	down
209	1.25	TULIP POPLAR	none
R029	1.67	TULIP POPLAR	none

Developing A Data Dictionary

Test the Data Dictionary